

Journal of the Midwest Association for Information Systems (JMWAIS)

Volume 2019 | Issue 2

Article 4

2019

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Recommended Citation

Bansal, Gaurav and Redfearn, Noah (2019) "Trust Violation and Rebuilding After a Data Breach: Role of Environmental Stewardship and Underlying Motives," *Journal of the Midwest Association for Information Systems (JMWAIS)*: Vol. 2019 : Iss. 2 , Article 4.

DOI: 1017705/3jmw.000052

Available at: <https://aisel.aisnet.org/jmwais/vol2019/iss2/4>

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Date: 07-31-2019

Trust Violation and Rebuilding After a Data Breach: Role of Environmental Stewardship and Underlying Motives

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Abstract

The study examined the role of different Corporate Social Responsibility (CSR) initiatives on a decline in trust and its restoration following a data breach and a subsequent CEO apology. The study uses four scenarios: a website with recognition of a genuine environmental CSR initiative (W1), a website with an environmental CSR initiative with a profit-motive (W2), a website with an ethical CSR initiative (W3), and a control website with no specific CSR initiative (W4). The data was collected from 500 Amazon MTurk workers and analyzed using ordinary least squares regression and multivariate tests. The findings confirm the role of a CSR initiative (vs. no CSR) and also the impact of underlying motives (profit-motive vs. genuine environmental CSR) on a trust decline and restoration. The results indicate the role of privacy concerns is moderated by the underlying CSR context. The article concludes with a discussion of the managerial and theoretical implications.

Keywords: Data breach, trust violation, trust rebuilding, corporate social responsibility (CSR)

Please note: A prior version of this article received a best paper award at the 2018 Midwest Association for Information Systems (MWAIS) in Oshkosh, Wisconsin. Springfield, IL. The article has been expanded and subject to a second round of reviews. We congratulate the authors.

DOI: 1017705/3jmwa.000052

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1. Introduction

Data breaches are increasing, and there is limited research on how to contain the negative impact of trust violations and how to repair trust following a data breach (Bansal 2017). In this research study, we examine the factors that may help in containing the harm to trust and then aid in trust restoration after the breach and a subsequent apology from an online business. Prior research has looked at various factors such as the role of timing in acknowledging the breach, CEO gender, mode of breach – unauthorized sharing or hacking, type of response – denial or an apology for a trust violation among others (Bansal 2019). We examine the role of perceived engagement in environmental corporate social responsibility (CSR) in cushioning the negative impact on trust and restoring the violated trust. Environmental awareness is on the rise, and increasingly businesses witness customers expecting them to devote resources towards environmental CSR. In this research study, we were particularly interested in the following two research questions: (a) Can CSR be used as a shield to cushion trust violation and aid in trust repair following a data breach; (b) does “other-centered” CSR provide significant advantage over “self-centered” CSR in trust violation and repair process.

This article has three major sections: a review of the theory and research model, a summary of the research methodology and results, and finally a discussion of the findings.

2. Theory and Research Model

CSR has been defined in multiple different ways. For the purpose of this research study we relied on the following definition from the Commission on the European Communities (2001): *A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders voluntarily* (Dahlsrud 2008). Prior research suggests that companies engaged in CSR are perceived as more trustworthy (Choi and La 2013). Thus, it is no surprise that many corporations are actively engaged in CSR out of genuine need (other-centered) and/or to gain financial rewards (self-centered). However, research also suggests that “other-centered” CSR is rewarded highly as compared to “self-centered” CSR (Sen et al. 2006). Research suggests that negative CSR or self-centered motives can have a detrimental effect on product evaluations whereas positive CSR can enhance product evaluations (Brown and Dacin 1997). Based on the literature review we argue that CSR leads to trust due to three factors: genuine attribution (De Roeck and Delobbe 2012), identification (Sen et al. 2006) and insurance policy (Godfrey et al. 2009) effect. Self-centered CSR businesses would encounter higher attribution (the perception that the website is using CSR to promote self-interest, and is opposite to *genuine attribution*), lower identification, and lower insurance policy effect.

Research has noted that CSR initiatives could backfire when consumers are skeptical about the Organization’s motives – genuine and “other-centered,” as opposed to profit-oriented and “self-centered” (De Roeck and Delobbe 2012). Such skeptical motives would have a three-fold effect. First, they would increase the degree of negative attribution regarding consumer exploitation (attribution). Second, they would lower the degree to which the consumers identify their values with the company’s (identification). Third, they would decrease the degree of perceived benevolence towards “others” (insurance policy) effect of any CSR (Iglesias et al. 2018, Godfrey 2009). So, when there is a negative event such as a data breach, the higher identification associated with the “other-centered” websites would lower the attribution and also provide greater “insurance policy” effect whereas, the lower identification associated with “self-centered” websites would increase the attribution and thus the “insurance policy” effect as well.

Hypothesis 1: Following an insider data breach, there is a greater trust drop in the “self-centered” website (W2) as opposed to (a) “other-centered” websites such as environment (W1), and (b) ethics (W3), and the neutral website (c) control (W4).

Hypothesis 2: Following an insider data breach and subsequent apology from the website, there will be a greater trust restoration for (a) W1 as compared to W2 and, also (b) W1 as compared to W4.

Privacy concern (PC) is argued to be associated with the degree of control and fairness on how one’s information is used and protected (Bansal and Zahedi 2015). A data breach could lessen the users’ trust in the organization’s ability to properly safeguard one’s information by signaling failure on the part of the management to prevent the breach. We argue that such a breach would be associated with higher trust drop especially for the users with high PC as opposed to users with low PC. An apology is associated with a promise to “mend” the relationship. However, it also signals an admittance of guilt (Schweitzer et al. 2015; Walfisch et al. 2013). Thus, it could be argued that high PC users (as opposed to low PC

users) would find their trust restoration hampered following an apology after a data breach.

Hypothesis 3a: Privacy concern will be positively associated with trust drop after the breach, and negatively associated with trust restoration after a subsequent apology.

CSR reflects an organization's moral character as well as a commitment to improving economic, social and environmental wellbeing. Organizations engaged in CSR activities generate higher trust in the users and lower their perceived risks in doing business with them – as they help lower attribution ([De Roeck and Delobbe 2012](#)), increase identification ([Sen et al. 2006](#)) and provide “insurance policy” effect ([Iglesias et al. 2018](#), [Godfrey 2009](#)). Thus, we argue any CSR (as opposed to no CSR) would help allay the fears of high PC users regarding the safeguarding of their data controlled and managed by the online business.

Hypothesis 3b: Privacy concern will be positively associated with trust drop after the breach, and negatively associated with trust restoration after a subsequent apology more so for non-CSR websites (W4) than for CSR websites (W1, W2, and W3).

CSR initiatives that are perceived to be profit-oriented and “self-centered” lower the identification ([Sen et al. 2006](#)) increase the attribution ([De Roeck and Delobbe 2012](#)) thus lowering any “insurance policy” ([Godfrey et al. 2009](#)) effect associated with CSR.

Hypothesis 3c: Privacy concern will be positively associated with trust drop after the breach, and negatively associated with trust restoration after a subsequent apology more so for self-centered CSR websites (W2) than for other-centered CSR websites (W1, and W3).

3. Research Methodology and Findings

The study was examined using four scenarios – W1, W2, W3, and W4 (as shown in Table 1). Since CSR activities have an ethical component as well ([Choi and La 2013](#)), thus we created two different control groups – one with ethical-centered orientation (W3), and one neutral – with no CSR initiative (W4). We used Qualtrics for data collection. The respondents were recruited through Amazon Mechanical Turk from all over the US. Data were analyzed using SPSS. We used existing items in our experimental design to ensure reliability and validity. The experiment flow chart is explained in Figure 1.

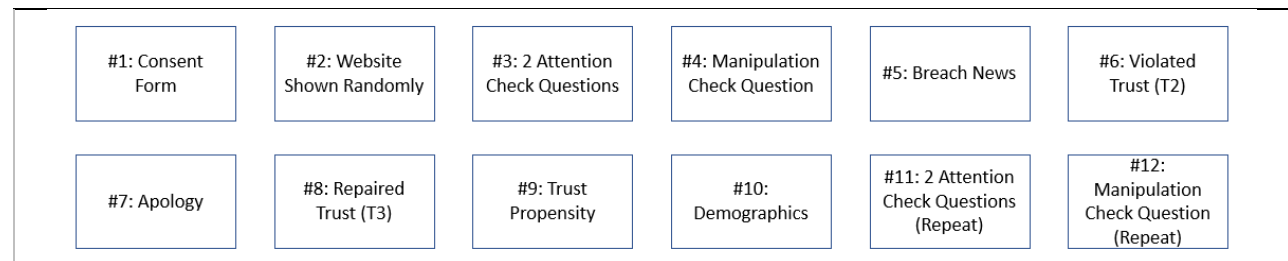


Figure 1. Experiment Flow Chart

Website #	Context	Description
W1	A website with recognition for genuine environmental CSR	You are planning to buy furniture for your family. You came across Warehouse E-mart online. You were able to find this site by searching on Google. You learn from the website that in order to save the environment the company uses recycled wood to manufacture its furniture. It has also been awarded and recognized for its contributions and efforts towards maintaining sustainable forests, by planting new trees as the old trees are felled.
W2	A website with environmental CSR for profit-	You are planning to buy furniture for your family. You came across Warehouse E-mart online. You were able to find this site by searching on Google. You learn from the website that the company is helping the environmental cause by using recycled

	motive	furniture to manufacture some of its products.
W3	A website with ethical CSR	You are planning to buy furniture for your family. You came across Warehouse E-mart online. You were able to find this site by searching on Google. You learn from the website that the company puts extra emphasis on ensuring that it follows ethically correct business operations and engages with only those organizations that follow fair labor practices.
W4	A website with no specific CSR initiative (Control)	You are planning to buy furniture for your family. You came across Warehouse E-mart online. You were able to find this site by searching on Google.

Table 1. Vignettes Used

3.1. Data Collection

We collected data from 500 MTurk workers. Only those respondents who correctly answered the attention check and scenario manipulation questions were retained for further analysis. We had 146 male respondents and 159 female respondents. Six respondents chose not to disclose or associate themselves with male or female options. Thus, we had 311 individuals in our final sample size. The dependent variables trust drop and trust restoration were computed by differencing the average of violated trust from the average of initial trust, and the average of restored trust from the average of violated trust respectively.

	#N	#Males	#Females	Age Range	Age Mean	Age Std dev
W1	72	32	39	24-83	41.17	13.403
W2	92	48	44	21-91	36.50	11.858
W3	88	47	38	20-73	37.98	11.818
W4	59	19	38	19-68	39.20	12.857

Table 2. Demographics

3.2. Data Analysis and Results

The analysis in Figures 2 and 3 show that our manipulation check was successful. Univariate analysis in Figure 2 shows that in terms of CSR – people associated W1 with the highest level of CSR, as compared to W2 next, and W3 being third best, and W4 the last. The differences were significant at $p \leq 0.004$. Also, Univariate analysis in Figure 3 shows that attribution (using CSR for a selfish motive) was significantly lower for W1 both as compared to W2 ($p = 0.018$), and W3 ($p = 0.041$). We then analyzed the data using multivariate and regression analysis. The results are shown in Table 3 also in Figure 4 and summarized in Table 4.

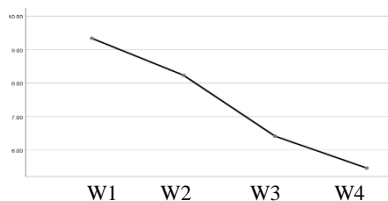


Figure 2. Univariate Analysis for CSR (no covariates)

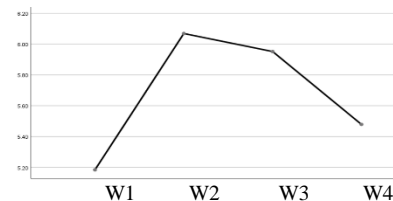


Figure 3. Univariate Analysis for CSR Attribution (no covariates)

		Combined Multivariate Analysis	Regression Analysis for 4 groups
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Construct	Dependent Variable	df	F	P value	Overall Direction*	(p values)			
						W1	W2	W3	W4
(R Square)						.539	.311	.353	.340
PC	Trust Drop	1	0.251						.006
	Trust Restoration	1	0.849				-.014		
CSR Attribution	Trust Drop	1	8.762	0.003	-			-.048	
	Trust Gain	1	0.386			-.004			
News Seriousness	Trust Drop	1	56.776	0.000	+	.000	.009	.004	
	Trust Gain	1	0.208						
Age	Trust Drop	1	2.479						
	Trust Gain	1	0.354						
Moral Beliefs	Trust Drop	1	8.562	0.004	-	-.030			
	Trust Gain	1	2.816	0.094	-	-.001			
Environmental Consciousness	Trust Drop	1	2.145						
	Trust Gain	1	7.419	0.007	+	.006			
CSR	Trust Drop	1	0.061						
	Trust Gain	1	0.000				-.015		
Initial Trust	Trust Drop	1	23.15	0.000	+	.009	.010		
	Trust Gain	1	1.731				.002		
Trust Propensity	Trust Drop	1	1.483						
	Trust Gain	1	2.844	0.093	+	.004		.011	
Scenario Shown	Trust Drop	3	1.234			-	-	-	-
	Trust Gain	3	1.535			-	-	-	-

Table 3. Multivariate and Regression Analysis (with covariates)

* Direction is reported where p values were less than .10; only the significant p values (less than .10) are shown.

Trust Drop and Rebuilding analysis (no covariates)

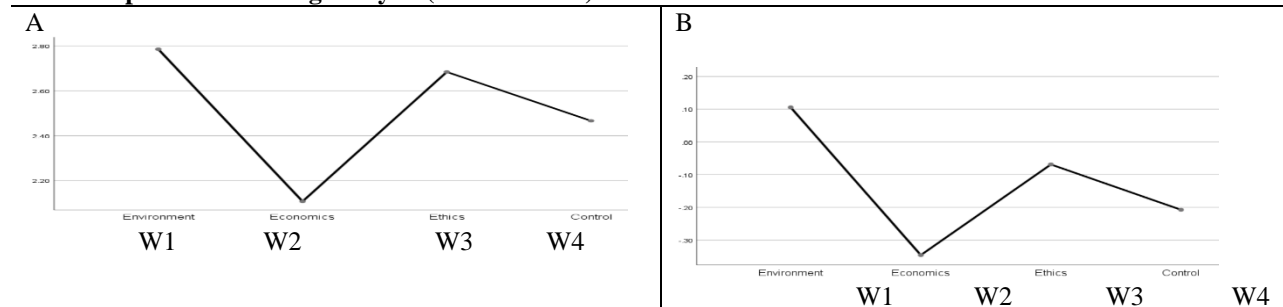


Figure 4. Overall Trust Drop (A) and Trust Restoration (B)

Hyp#	Hypotheses Argument	Test Results	Remarks
H1a	Trust drop: W2 > W1	Posthoc multi variate test: p .071 (Figure 4iA)	Reverse supported at .10 level
H1b	Trust drop: W2 > W3	Posthoc multi variate test: ns (Figure 4iA)	Not supported

H1c	Trust drop: $W2 > W4$	Posthoc multi variate test: ns (Figure 4iA)	Not supported
H2a	Trust restoration: $W1 > W2$	Posthoc multi variate test: p .031 (Figure 4iB)	Supported
H2b	Trust restoration: $W1 > W4$	Posthoc multi variate test: ns (Figure 4iB)	Not supported
H3a	(i) PC increases Trust drop	Combined multivariate analysis: ns (Table 3)	Not supported
	(ii) PC lowers Trust restoration	Combined multivariate analysis: ns (Table 3)	Not supported
H3b	(i) PC increases Trust drop when there is no CSR	Regression analysis: p .006 (Table 3)	Supported
	(ii) PC lowers Trust restoration when there is no CSR	Regression analysis: ns (Table 3)	Not supported
H3c	(i) PC increases Trust drop for self-centered than for other-centered	Regression analysis: ns (Table 3)	Not supported
	(ii) PC lowers Trust restoration for self-centered than for other-centered	Regression analysis: p .014 (Table 3)	Supported

Table 4. Result Summary

Table 4 shows that H1a is reverse supported at $p < .10$ level and H2a, H3b(i) and H3c(ii) are supported at $p < .05$ level.

4. Discussion

The research provides with several interesting findings. Contrary to the hypothesized argument we found that trust drop is higher for *other-centered* W1 than for *self-centered* W2. The effect is weak and is significant only at .10 level; however, it does indicate that at times we get hurt more by the ones' we love or expect more from (Miller 1997). The fact that W2 experienced lower trust drop is surprising in light of the fact that respondents associated W2 with higher attribution (Figure 3), and lower CSR (Figure 2) as compared to W1. One reason could be that users have low expectations from W2 (self-centered); hence it experienced a low drop, but then W2 was punished by low trust restoration after an apology. We argue that since W2 was doubted at first place for its motives, and the apology confirmed the guilt, and therefore W2 experienced lower trust restoration. Trust restoration after a breach and apology is higher for W1 than for W2. This shows that website with recognition for genuine environmental CSR provides higher genuine "attribution," higher "identification," and "insurance policy" as compared to the website with environmental CSR for the profit motive. The role of privacy concern is moderated by the underlying CSR context. Privacy concern increases the trust drop if the website is not associated with a CSR initiative, and lowers the trust restoration for *self-centered* CSR websites. The study thus adds to the trust violation and repair literature and also provides practical guidance to managers of websites indulged in CSR activities. Results show that perceived CSR levels were high for W1 and also for W2, as compared to W3 (refer to Figure 2). This is an important finding suggesting that even profit motive environmental engagement is perceived at a higher CSR level than ethics governance.

4.1. Limitations and Extensions

Even though we used a scenario-based study to control for extraneous variables, it will be helpful to replicate the findings using longitudinal field studies. Another limitation is that third-party recognition as in W1 versus the self-claim in W2 and W3 could have impacted the degree of attribution and CSR levels (Kim 2019) for the website W1. All the items were self-reported including the initial, violated and repaired trust.

There is limited research on examining broken trust and trust repair process after a data breach. As the number of data breaches increases and people get more environmentally aware, a deeper understanding of how CSR initiatives could cushion the trust drop and aid in trust restoration is needed. Our work makes a contribution in this direction. Furthermore, our work shows that there is merit in examining the role of privacy concern and CSR motives in trust violation and repair process.

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Acknowledgment

We would like to acknowledge the support of Frederick E. Baer Professorship in Business at UW-Green Bay for financial support.

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Noah Redfearn is a third-year student at the Austin E. Cofrin School of Business at UW-Green Bay. He is currently studying in the business administration program and majoring in entrepreneurship and finance with a minor in international business. He is perusing a career path in business ownership and corporate business management. He currently serves as senior vice president for Society for Information Systems Management and Business Analytics (SISMBA). He also is a participating member in the student finance association (SFA) along with the Collegiate Entrepreneurs Organization (CEO).